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For IBM-PC™, XT™, AT™ and Compatibles

RASH BACK



Instruction Manual

FASTBACK.*

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EASTBACK.

Section 1: Introduction

Using the FASTBACK Instruction Manual

This manual has been designed to help you
FASTBACK—quickly and easily.

You will find that FASTBACK is very user friendly. You will be able to file this manual in a safe place.

What You Will Need

- Your FASTBACK registration
 - Your FASTBACK distributor
 - One (1) formatted diskette
 - Diskettes (formatted or unformatted)

For your first backup procedure, a full PC-
(360K each). A full PC-AT will require 15-
have more or less data on your hard disk,
accordingly.

Registration Card

Please take a few minutes to fill out the FA
it in the mail. The information will be used
products. Also, our technical support group

Your FASTBACK Distribution Diskette

The distribution diskette contains a label, signature. The label is important because it authorized copy. Fifth Generation Systems distribution diskette free of charge at any time is very difficult to destroy) is read by FAST executes. The programs, which appear as copied to other diskettes for safekeeping programs are fairly easy to erase, so make particularly important to keep copies of FFS recovering your data. The distribution disk

Copy Protection

FASTBACK is copy protected. FRESTORE

As a registered user, you may obtain a copy of the software protection by signing the enclosed REQUEST FOR
VERSION OF FASTBACK and mailing it to Fifth Generations Systems, Inc. (\$25.00) along with a copy of your
FASTBACK with your name in the sign-on screen. Please sign the software carefully—it has teeth. Corporate users should

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Section 1: Introduction

Using the FASTBACK Instruction Manual

This manual has been designed to help you enjoy the time saving benefits of FASTBACK—quickly and easily.

You will find that FASTBACK is very user friendly. After the first use you will be able to file this manual in a safe place.

What You Will Need

- Your FASTBACK registration card
- Your FASTBACK distribution diskette
- One (1) formatted diskette (for backup copy)
- Diskettes (formatted or unformatted)

For your first backup procedure, a full PC-XT will require 20-25 diskettes (360K each). A full PC-AT will require 15-18 diskettes (1.2Mb each). If you have more or less data on your hard disk, adjust the number of diskettes accordingly.

Registration Card

Please take a few minutes to fill out the FASTBACK registration card and drop it in the mail. The information will be used to notify you of updates and new products. Also, our technical support group will be able to identify you.

Your FASTBACK Distribution Diskette

The distribution diskette contains a label, 3 programs, and a special magnetic signature. The label is important because it identifies your diskette as an authorized copy. Fifth Generation Systems will replace your labeled distribution diskette free of charge at any time. The magnetic signature (which is very difficult to destroy) is read by FASTBACK each time the program executes. The programs, which appear as a standard DOS directory, may be copied to other diskettes for safekeeping. As with any DOS diskette, the programs are fairly easy to erase, so make sure you have backup copies. It is particularly important to keep copies of FRESTORE, as it is essential to recovering your data. The distribution diskette is not required for FRESTORE.

Copy Protection

FASTBACK is copy protected. FRESTORE is not.

As a registered user, you may obtain a copy of FASTBACK without copy protection by signing the enclosed REQUEST TO OBTAIN A COPYABLE VERSION OF FASTBACK and mailing it with the required registration fee (\$25.00) to Fifth Generations Systems, Inc. You will receive a serialized copy of FASTBACK with your name in the sign-on message. Read the agreement carefully—it has teeth. Corporate users should consider site licensing.

ve 'A' and type:

our machine. The customized version XE) will be installed on your hard disk. needed during the installation.

will make a recommendation about the CONFIG.SYS'. If you elect to change the ructions in your DOS manual. Note that rmance of your computer, not just eses the hard disk heavily will benefit.

\FASTBACK containing the programs EXE' which may be moved to another ASTBACK' will be used for the catalog to create a catalog file, remove the

ORTANT!!!
t bac' using FASTBACK,
operates with the 'Verify'
E. This will not change any
sk. FRESTORE should not
but if it does, see section 12
e of Trouble'.

FASTBACK.

Section 3: Running FASTBACK

1: Place your FASTBACK distribution diskette in drive 'A' or 'B'.

2: Type:

FASTBACK ↵

3: If your computer responded with "bad command", type:

CD \FASTBACK ↵
FASTBACK ↵

4: Answer each of the questions by typing ↵. This will back up all the files on drive 'C'.

5: After a few seconds, the program will ask that you remove the distribution diskette.

6: FASTBACK will immediately begin reading files from the hard disk. As each file is read, its path and name are displayed in the lower left portion of the screen. Prompts for disk changes are displayed in the upper left section of the screen. Center your attention on the disk change section. As each diskette is filled, you will be prompted (with a beep) to change diskettes. If your system has 2 drives, FASTBACK will alternate so you can change diskettes in one drive while a diskette is being filled in the other drive. It may sound complicated, but the trick is to watch for the 'CHANGE DISKS' message to appear (a beep will also sound).

It's not necessary to label the diskettes since FASTBACK is labeling each one magnetically. Just stack them in order and keep them in a group (old diskette boxes work great). FASTBACK uses this label to make sure disk changes are done properly. If a disk is put in twice, a warning will appear.

IMPORTANT!!!

The red light on the diskette drive may be on during disk changes. That's ok, go ahead and change the disk. FASTBACK monitors the status of the disk drive to determine when a disk change occurs. To do this, the motor must be kept running. Just follow the screen prompts and ignore the red light.

7: When the backup is complete, FASTBACK will announce several statistics which may be of interest. Remember to remove the last diskette!

8: If you want to print a directory of your backup set, type:

CD \FASTBACK ↵
PRINT FASTBACK.CAT ↵

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Section 4: Running FRESTORE

The primary purpose of FRESTORE is to retrieve files from diskettes created by FASTBACK. However, it can also search for particular files in your backup set and compare backup files with files on the hard disk. To restore a file (or files), follow the instructions below.

1: Type:

FRESTORE ↵

2: If your computer responded with "bad command", type:

CD \FASTBACK ↵
FRESTORE ↵

3: The menu screen will appear.

- 4: Use the cursor control keys 'Up-Arrow', 'Down-Arrow', 'Pg-Up', 'Pg-Dn', 'Home', and 'End' to move to the file of interest.
- 5: To compare a file in the backup set with the file of the same name on the hard disk, type 'V' (verify).
- 6: To restore a file from the backup set to the hard disk, type 'R' (restore).
- 7: Control-V and Control-R will start with the current file and verify or restore files until Control-C is pressed.
- 8: Notice the 'replace' option at the top center. When you ask for a file to be restored, and that file exists on the hard disk, FRESTORE will either ask if it's ok to delete the existing file, automatically delete the existing file, or skip the operation entirely. The action is determined by the 'replace' option which may be changed by pressing '1', '2', or '3'.
- 9: When diskettes are required, FRESTORE will issue the appropriate prompts.

FASTBACK

Section 5: FASTBACK—Advanced Use

The program is completely contained in the file "\FASTBACK\FASTBACK.EXE". Copy other programs to prevent the 'Bad command or file format' error.

There are three ways of invoking FASTBACK. The optional switches, defined later, are the same for all three methods.

Method 1—Interactive

C>FASTBACK [optional switches] ↵

Which hard disk to copy from (return for *)

Most systems only have one hard disk. If you are prompted for a hard disk, pressing ↵ is the same as entering the letter 'A'. If you have more than one hard disk, you may choose either one. Backups may NOT be made from floppy disks. If you want to consolidate data from several diskettes, copy them to a hard disk before running FASTBACK.

Which directory to back up? (return for *)

This specifies the starting directory. It may be selected by pressing ↵.

Backup subdirectories of d:path? (return for *)

A 'Y' answer will include all subdirectories (and all files in the first two questions) to be included in the backup. A 'N' answer starting in the root directory and including only the specified hard disk is included.

Which file to back up? (return for *.* file)

Similar to other DOS commands (like DIR). An asterisk will match multiple files. A question mark will match one file. An asterisk followed by an asterisk ("*.*") will include all files.

Skip files which haven't changed since last backup? (return for Y/N)

Each time a file is changed, DOS sets the file as modified. If you answer 'Y', FASTBACK will search for all modified files and back them up. As the file is backed up, the backup set includes changed files. This is called an "incremental backup".

is to retrieve files from diskettes created
to search for particular files in your backup
files on the hard disk. To restore a file (or

with "bad command", type:

'Up-Arrow', 'Down-Arrow', 'Pg-Up',
move to the file of interest.

set with the file of the same name on the

up see the hard disk, type 'R' (restore).
start with the current file and verify or
pressed.

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by pressing '1', '2', or '3'.

RESTORE will issue the appropriate

FASTBACK*

Section 5: FASTBACK—Advanced Use

The program is completely contained in the file
"\FASTBACK\FASTBACK.EXE". Copy this file to the same area as your
other programs to prevent the 'Bad command' message from DOS.

There are three ways of invoking FASTBACK, each detailed below. The
optional switches, defined later, are the same for each method.

Method 1—Interactive

C>FASTBACK *[optional switches]* ↵

Which hard disk to copy from (return for 'C:') *d* ↵

Most systems only have one hard disk, drive 'C>'. As shown in the
prompt, pressing '*d*' is the same as entering 'C:*d*'. If your system has
more than one hard disk, you may choose which one to read.
Backups may NOT be made from floppy disks. If you want to
consolidate data from several diskettes, copy the files to a hard disk
before running FASTBACK.

Which directory to back up? (return for '\') *path* ↵

This specifies the starting directory. The default, the root directory,
may be selected by pressing ↵.

Backup subdirectories of *d:path*? (return for 'Y') <*Y/N*> ↵

A 'Y' answer will include all subdirectories of *d:path* (specified by the
first two questions) to be included in the file search. Note that by
starting in the root directory and including subdirectories, the entire
hard disk is included.

Which file to back up? (return for *.*.) *filename.ext* ↵

Similar to other DOS commands (like 'DIR'), FASTBACK can search
for particular files. A question mark will match a single character
while an asterisk will match multiple characters. The default answer
"**.*" will include all files.

Skip files which haven't changed since last backup? (return for 'N') <*Y/N*> ↵

Each time a file is changed, DOS sets a bit in the directory. If you
answer 'Y', FASTBACK will search for those files and exclude all
others. As the file is backed up, the bit is reset. A backup which only
includes changed files is called an 'incremental' backup.

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Method 2—Command Line

FASTBACK *d: path <Y/N> filename.ext <Y/N> /optional switches/*

This method is handy for running FASTBACK from a batch file. Its organization is consistent with method 1. Simply answer each question, in order, on the command line. Separate the answers with a space or spaces. Note that each question must be answered. As a debugging aid, FASTBACK will still issue the prompts and display the command line argument.

See method 1 for a detailed description of each argument.

Example (backs up all files on drive 'C':):

C>FASTBACK C: \ Y ** N

Method 3—Command File

FASTBACK @*filename.ext /optional switches/*

Although method 2 is great for full backups or incremental backups of a single hard disk, it is rather clumsy for backing up groups of unrelated files (different drives, different directories, different names, etc.). A command file will allow different drives, directories, and even individual files to be grouped into a single backup run.

The command file may reside anywhere. The name may be any legal DOS file name. Like batch ("BAT") files, it should contain only valid ASCII characters (some word-processing editors put extra characters in the file). The last line must be blank. The syntax is very similar to the DOS 'BACKUP' command.

Each line should follow the format listed below:

d:directory\directory\...\filename.ext //S| //M| //V

<i>d:</i>	is the drive name
<i>directory</i>	is the path
<i>filename.ext</i>	is the filename and extension
<i>/S (optional)</i>	causes subdirectories to be included
<i>/M (optional)</i>	selects only the files which have changed
<i>/V (optional)</i>	performs read-after-write verify

In modes 1 and 2, FASTBACK will delete the catalog file prior to a full backup. When running from a command file, this action is under user control.

FASTBACK

The special line

/DELCAT

will cause the catalog file to be deleted. Using this command file, a new catalog file will be created.

Example (invokes command file '\FB.CMD')

C>FASTBACK @ \FB.CMD

Example command file (back up all of drive C):

C:** /S
D:** /S

Optional Switches

To provide added flexibility, FASTBACK uses optional switches on the command line. Following DOS convention, they are preceded by a forward slash ('/'). Each switch is listed below:

/v

Causes all diskettes to be read immediately. This is not as useful as it sounds because:

- 1: Verify at least doubles the backup time.
- 2: An on-the-fly verify only verifies that the data is on the disk. It doesn't verify that the data is correct. For instance, a bad memory chip could corrupt data during the copy process. This corrupted data will appear to be good data on the disk, but it is NOT the same data that was written.
- 3: An on-the-fly verify does not guarantee that the data is correct. If a diskette is mis-seated, the verify process, to be read it would need to be read again in a different way.
- 4: FASTBACK implements error correction. It can read bad sectors (one per track, each side). If a sector is bad, other sectors may be recovered from a 720K disk. Is there even though the sector may be bad? The answer is yes! BACKUP WAS MADE! This places the data on the disk without wasting any time.

When should '/v' be used? In our opinion, it is best to use it with FRESTORE's 'Verify' function which will verify the data on the disk against the original. If you really want to be safe, use both FASTBACK and FRESTORE, then make another backup (of course). Why was this option included? It was included at the suggestion of our customers.

name.ext <Y/N> [optional switches] *

FASTBACK from a batch file. It's
mod 1. Simply answer each question, in
ate the answers with a space or spaces.
nswered. As a debugging aid, FASTBACK
play the command line argument.

tion of each argument.

'C':):

A Y ** N *

onal switches] *

backups or incremental backups of a single
cking up groups of unrelated files (different
nt names, etc.). A command file will allow
en ir individual files to be grouped into a

here. The name may be any legal DOS file
should contain only valid ASCII characters
extra characters in the file). The last line
similar to the DOS 'BACKUP' command.
listed below:

[S] [/M] [/V]

rive name

ath

lename and extension

subdirectories to be included

only the files which have changed

ns read-after-write verify

I delete the catalog file prior to a full
mand file, this action is under user control.

FASTBACK

The special line

/DELCAT

will cause the catalog file to be deleted. Unless this is the last line of the command file, a new catalog file will be created.

Example (invokes command file '\FB.CMD'):

C>FASTBACK @ \FB.CMD *

Example command file (back up all of drives 'C': and 'D':):

C:*.* /S
D:*.* /S

Optional Switches

To provide added flexibility, FASTBACK will accept a number of switches on the command line. Following DOS conventions, a switch is always preceded by a forward slash ('/'). Each switch is listed and defined below.

/v

Causes all diskettes to be read immediately after they are written.
This is not as useful as it sounds because:

- 1: Verify at least doubles the backup time.
- 2: An on-the-fly verify only verifies that data can be read from the floppy disk. It doesn't verify that the data is the same data read from the hard disk. For instance, a bad memory chip could alter the data during the copy process. This corrupted data will be stored properly on the floppy disk, but it is NOT the same data that is on the hard disk.
- 3: An on-the-fly verify does not guarantee that data can be read from a mis-seated diskette. That is, if the diskette is crooked during the writing process, to be read it would need to be mis-seated in exactly the same way.
- 4: FASTBACK implements error correction techniques to recover up to 80 bad sectors (one per track, each side) on a 360K diskette. Up to 160 bad sectors may be recovered from a 720K or 1.2Mb diskette. This protection is there even though the sector may have been damaged AFTER THE BACKUP WAS MADE! This places the odds heavily in your favor, without wasting any time.

When should '/v' be used? In our opinion, never. Instead, use FRESTORE's 'Verify' function which will perform a true file-by-file comparison. If you really want to be safe, make a backup, verify it with FRESTORE, then make another backup (on separate diskettes, of course). Why was this option included? We really read those suggestions on the registration cards.

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/360

Will cause FASTBACK to use the 360K floppy disk drive on systems which have a high capacity drive and a standard drive. This will generate diskettes which can be reliably read by standard (360K) drives.

/720

Valid option for systems with 1.2Mb 'AT' style drives. Allows standard (cheaper) media to be used in place of the special high-density media normally required.

/nowrite

Disables updates to the directory archive bit and disables updates to the catalog. Very useful in two specific situations: 1) When a damaged system is about to go in for a repair and a last ditch effort is being made to back up the data. 2) To get a copy of data from a hard disk for transfer to another system without disturbing the archive bits or the catalog.

NOTE: if diskettes are created with the /360 or /720 switch, you must use the same switch on FRESTORE.

FASTBACK

Section 6: FRESTORE—Advanced Use

The program is fully contained in the file which may be copied to any area of your hard disk. The switches that are allowed on the command line to handle different formats are:

FRESTORE [*optional switches*] ◀

Optional Switches

/360

Will read diskettes created on 360K drives.

/720

Will read diskettes created on 720K drives. Both drives must have at least one high-capacity drive.

Most FRESTORE commands are obvious. If you need some explanation:

The '-' command will switch the directory on the floppy disks. This reduces the amount of time spent reading the floppy disk as you move around the directory. It is important to note that this dependence on the hard disk catalog applies to the most recent backup set. If you want to use the floppy directory, To use the '-' key, press the '+' key.

'Control-C'

'Control-C' will abort a command that is currently in progress. It is useful to cancel a command which has been accepted but has not yet started. As a side effect, 'Control-C' is accepted regardless of the time and date. When combined with the '-' command, this allows a directory to be accessed without leaving the program.

the 360K floppy disk drive on systems
drive and a standard drive. This will
be reliably read by standard (360K)

1.2Mb 'AT' style drives. Allows
be used in place of the special
required.

copy archive bit and disables updates to
specific situations: 1) When a
in for a repair and a last ditch effort is
a. 2) To get a copy of data from a hard
stem without disturbing the archive

with the /360 or /720 switch, you
FRESTORE.

FASTBACK

Section 6: FRESTORE—Advanced Use

The program is fully contained in the file \FASTBACK\FRESTORE.EXE
which may be copied to any area of your disk. As with FASTBACK, switches
are allowed on the command line to handle special situations. The command
format is:

FRESTORE *[optional switches]*

Optional Switches

/360

Will read diskettes created on 360K drives.

/720

Will read diskettes created on 720K drives. Of course, your system
must have at least one high-capacity drive (either 720K or 1.2Mb).

Most FRESTORE commands are obvious, but two commands need
some explanation:

The '-' command will switch the display from the catalog file to the
directory on the floppy disks. This requires that diskettes be changed
as you move around the directory. Its purpose is to preclude any
dependence on the hard disk catalog file. Also, the catalog file only
applies to the most recent backup set; to access older sets you must
use the floppy directory. To use the catalog file after pressing the '-'
key, press the '+' key.

'Control-C'

'Control-C' will abort a command that is in progress. In particular, it
is useful to cancel a command which is demanding a particular
diskette. As a side effect, 'Control-C' will force a diskette to be
accepted regardless of the time and date of creation. In conjunction
with the '-' command, this allows different backup sets to be
accessed without leaving the program.

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Section 7: FINSTALL

The program is fully contained in the file 'FASTBACK\FINSTALL.EXE' which may be copied to any convenient area of your disk. The purpose of FINSTALL is to determine the characteristics of the host computer and generate customized versions of 'FASTBACK.EXE' and 'FRESTORE.EXE'. If you have already installed FASTBACK, FINSTALL will reconfigure the existing programs in the directory '\FASTBACK'. If you have other copies of FASTBACK.EXE or FRESTORE.EXE, they will not be affected. If the programs are not found in \FASTBACK, FINSTALL will create the directory and copy them from the distribution diskette.

As new hardware support is added to FASTBACK, FINSTALL will change. A detailed description is not included here. Instead, complete descriptions and narrative text will appear on the screen.

Command format:

FINSTALL ↴

FASTBACK

Section 8: Catalog File

The catalog file provides rapid lookup of files.

The actual directory for backup diskettes is

catalog file is not necessary to the operation.

To disable the catalog file altogether, simply type

'\FASTBACK'.

The catalog file always exists in the directory '\FASTBACK'. It contains printable ASCII, fixed length records, strings. Changes can be made by printing the file '\FASTBACK\CAT'. The file '\FASTBACK.CAT' may be manipulated by any database management program. NEVER EDIT '\FASTBACK.CAT.' ALWAYS WORK WITH '\FASTBACK'.

The catalog file contains an entry for each diskette. A backup set consists of a full backup and the subsequent differential backups. Consequently, FASTBACK will create a new one whenever a full backup is performed. The command '/DELCAT' is encountered in a command file, it will delete the catalog file. Any diskette protected from overwriting. To re-use the diskette, make a backup using 'FASTBACK' or manually enter the diskette number.

The file 'FASTBACK\FINSTALL.EXE' scans the current area of your disk. The purpose of this program is to determine characteristics of the host computer and to copy them to diskettes. If you run 'FINSTALL' from a diskette containing 'FASTBACK.EXE' and 'FRESTORE.EXE', if you run 'FINSTALL' from a diskette containing 'FASTBACK', FINSTALL will reconfigure the diskette to contain 'FASTBACK'. If you have other copies of 'FASTBACK', they will not be affected. If the diskette contains neither 'FASTBACK' nor 'FINSTALL', FINSTALL will create the directory '\FASTBACK' on the diskette.

When you run 'FINSTALL' from a diskette containing 'FASTBACK', FINSTALL will change A:\ to '\FASTBACK'. All files and subdirectories listed in the catalog file will be copied to the current directory. Instead, complete descriptions and names of all files and subdirectories will be printed to the screen.

FASTBACK.*

Section 8: Catalog File

The catalog file provides rapid lookup of files in your most recent backup set. The actual directory for backup diskettes is contained on each diskette. The catalog file is not necessary to the operation of FASTBACK or FRESTORE.

To disable the catalog file altogether, simply remove the directory '\FASTBACK'.

The catalog file always exists in the directory '\FASTBACK'. The format is printable ASCII, fixed length records, strings padded with spaces. Hardcopy can be made by printing the file '\FASTBACK\FASTBACK.CAT'. Copies of FASTBACK.CAT may be manipulated by sorting, editing, or perhaps loading into a database management program. NEVER CHANGE THE FILE 'FASTBACK.CAT.' ALWAYS WORK WITH A COPY. If you suspect damage to the catalog file, erase it. FASTBACK will create a new one.

The catalog file contains an entry for each file in the most recent backup set. A backup set consists of a full backup and the following incremental or partial backups. Consequently, FASTBACK will erase the catalog file and create a new one whenever a full backup is performed OR when the command '/DELCAT' is encountered in a command file (see 'FASTBACK—ADVANCED USE') Any diskette listed in the catalog file is protected from overwriting. To re-use these diskettes, either make a full backup using 'FASTBACK' or manually erase 'FASTBACK.CAT'.

Section 9: Speed

FASTBACK is actually several programs executing at the same time (time-sharing). One part uses DOS to search the directory, open files, and read files. Another part writes directly to the floppy disk drive. The floppy disk handler always operates at the same speed and consumes 6%-8% of the total CPU time. The other 92%-94% of the CPU time is spent reading the hard disk. The indicator 'DOS Performance' on the FASTBACK screen is a ratio of read time to write time. 100 means the hard disk is being read faster than the floppy disk can accept data. A low number (0-20) means the floppy disk is ahead and waiting on DOS to read the hard disk.

Causes of Reduced Performance

Slow disk changes

Disks can be changed easily in 4 seconds or less by using both hands. The technique:

1. Hold a diskette in one hand
2. Wait for the prompt
3. Use free hand to remove diskette
4. Insert diskette

Using unformatted diskettes

Since FASTBACK has special error correction codes built into the format, diskettes previously formatted by DOS are considered unformatted by FASTBACK. DOS takes 65 seconds to format a 360K diskette. FASTBACK will format AND fill it with data in only 40 seconds.

Poor DOS performance

The thing that impacts DOS performance more than anything else is the number of entries in a single subdirectory. When the directory gets too large to fit in DOS's cache, performance will suffer by a factor of 5 to 15.

A partial solution is to increase the size of the cache, determined by the 'BUFFERS=' statement in 'CONFIG.SYS'. Each buffer will hold 16 directory entries; the maximum value (99) can hold 1584 directory entries, but DOS needs buffers to open and read a file, so directories with more than (appx.) 1400 files will cause tremendous performance degradation. Since DOS uses a sequential search, the time required for directory searches can increase exponentially with the number of clusters in the directory. BACKUP TIME CAN INCREASE FROM 8 MINUTES TO SEVERAL HOURS! Once the directory has been expanded, it will not shrink until it is removed and re-created. This kind of degradation will affect any program which uses the disk. It is strongly recommended that you limit the number of files in a single subdirectory to 100-150. If you have a large number of files in a subdirectory, raise the 'BUFFERS=' value to 99.

Section 10: Hard Disk Errors

Hard disks are not perfect. Even a brand new disk (which you will never buy) will have bad sectors. Bad sectors can also appear on a disk which has been used for a long time. When your disk was formatted, the bad sectors were marked and the disk was not attempt to use them. If you ever see a message like "Bad sectors found on reading drive C:", you may have developed a minor problem. There is a program which tests the disk and maps out bad sectors. The latest version (3.0) is preferred over formatting. If you ever need to format a disk, use the 'FORMAT' command. See SECTION 11!!! When the disk is formatted, you will be presented with three options:

A)abort

Exits FASTBACK. Diskettes already filled with data will remain filled. Problems restoring files from the last diskette will be ignored.

R)etry

DOS will re-try the operation. Since 5 retries probably won't work. Everyone tries it at least once.

Ignore

This is the only way to continue the backup. If a file is damaged, it could not be read with garbage, which FASTBACK will ignore. IT IS UP TO YOU TO REMEMBER WHICH FILES ARE BAD. TAKE THE APPROPRIATE ACTION. A text editor, word processor, or using your text editor. An executable program which has been almost impossible to re-construct. Other files, such as database files, fall somewhere between the two extremes. The point is that there is no way to tell that the file has been damaged. (again) YOU MUST REMEMBER WHICH FILES ARE BAD.

ams executing at the same time to search the directory, open files, and to the floppy disk drive. The floppy same speed and consumes 6%-8% of the of the CPU time is spent reading the hard 'ce' on the FASTBACK screen is a ratio of the hard disk is being read faster than the number (0-20) means the floppy disk is the hard disk.

onds or less by using both hands. The

ne hand

move diskette

correction codes built into the format, DOS are considered unformatted by to format a 360K diskette. with data in only 40 seconds.

ance more than anything else is the cto. When the directory gets too large ill suffer by a factor of 5 to 15.

ze of the cache, determined by the SYS'. Each buffer will hold 16 directory hold 1584 directory entries, but DOS so directories with more than (appx.) performance degradation. Since DOS uses a or directory searches can increase sters in the directory. BACKUP TIME TO SEVERAL HOURS! Once the not shrink until it is removed and will affect any program which uses the you limit the number of files in a single large number of files in a subdirectory,

FASTBACK.*

Section 10: Hard Disk Errors

Hard disks are not perfect. Even a brand new hard disk can (and probably will) have bad sectors. Bad sectors can also develop after a period of use. When your disk was formatted, the bad sectors were flagged so that DOS will not attempt to use them. If you ever see an error message which says "Error reading drive C:", you may have developed a bad hard disk sector. This is NOT a minor problem and should be corrected as soon as possible. A program which tests the disk and maps out bad sectors (like Norton Utilities version 3.0) is preferred over formatting. IF YOU ELECT TO FORMAT YOUR HARD DISK, SEE SECTION 11!!! When the error occurs during FASTBACK, you will be presented with three options "A)bort, R)etry, or Ignore".

A)bort

Exits FASTBACK. Diskettes already filled are still valid, but expect some problems restoring files from the last disk.

R)etry

DOS will re-try the operation. Since 5 retries have already occurred, this probably won't work. Everyone tries it anyway.

Ignore

This is the only way to continue the backup. DOS will fill the data area that could not be read with garbage, which FASTBACK will store on your backup set. IT IS UP TO YOU TO REMEMBER WHICH FILE IS DAMAGED AND TAKE THE APPROPRIATE ACTION. A text file can probably be recovered by using your text editor. An executable program (*.COM' or '.EXE') will be almost impossible to re-construct. Other files, such as spreadsheet files and database files, fall somewhere between the two extremes. The important thing is that there is no way to tell that the file has been corrupted. That is why (again) YOU MUST REMEMBER WHICH FILE WAS DAMAGED!!!

Section 11: Before Formatting your Fixed Disk

Formatting your hard disk will remove all data. This means you will rely on your backup system to recover the data. While FASTBACK is very reliable, there are other factors to consider. The first is: Why are you considering a FORMAT? Many times, a system will develop problems (hardware or software), a backup is made, and the disk reformatted. Catch-22: if a system is not working properly, it probably cannot make a backup! The solution is to make regular backups, before problems develop.

Before you type 'FORMAT':

- 1:** Make a full backup. DO NOT OVERWRITE YOUR OLDER BACKUP DISKETTES.
- 2:** Use FRESTORE's 'Verify' function to make sure your backup is valid.
- 3:** Make another full backup. DO NOT OVERWRITE YOUR OLDER BACKUP DISKETTES, INCLUDING THE ONE YOU JUST MADE.

After the format, restore the files. If the machine had a problem, you may find files which were damaged before the backup was made. In that case, the file must be restored from backups which were made before the problem developed. (Regular backups WERE made, right?).

Section 12: In Case of Trouble

The following information was copied from

FASTBACK and FRESTORE

- Q:** The red light on the floppy drive is on.
A: FASTBACK and FRESTORE are designed to monitor the disk drive. There are consequences of opening a running disk drive. As long as the drive is not writing to the disk, it is not damaged by opening the door even if it is held open. Skeptics should remember that 8-inch floppy disks are not damaged by being handled.

FASTBACK

- Q:** The message 'WRONG DISK' or 'CANT FIND DISK' appears when I try to change disk.
A: A partial backup has been requested, and the catalog indicates that a backup set must be appended to the last diskette in the set until the last diskette is found. If the diskette does not exist, abort the operation and erase the file '\FASTBACK\FASTBAK.DAT'.

FASTBACK

- Q:** The message 'CANNOT FORMAT/VERIFY DISK' appears when I try to format a disk.
A: The disk controller cannot format the disk. This error is reported when standard diskettes are used and the proper media is being used. A bad sector is not the cause of the error, but to do so it must occur in the first 10 sectors. Another possible cause is a disk drive that is too slow. FASTBACK stores more data on the disk than DOS does, and added error correction information, and the disk drive must be able to handle it. The seek time of the disk drive is usually regulated to 0.5%.

FASTBACK

- Q:** The message 'CANNOT OPEN, FILE NOT FOUND' appears when I try to open a file.
A: DOS returned a file name to FASTBACK, and the subsequent 'Open File' call was unsuccessful. BASIC can create file names in illegal characters (most common is a file name longer than 8 characters). To cause this error, use BASIC to rename the file.

Fixed Disk

lose all data. This means you will rely on data. While FASTBACK is very reliable, the first is: Why are you considering a fixed disk reformatted. Catch-22: if a system is not make a backup! The solution is to reformat.

OVERWRITE YOUR OLDER BACKUP

tion to make sure your backup is valid.

NOT OVERWRITE YOUR OLDER BACKUP DING THE ONE YOU JUST MADE.

If the machine had a problem, you may find the backup was made. In that case, the file which was made before the problem was made, right?).

FASTBACK

Section 12: In Case of Trouble

The following information was copied from our Tech Support files.

FASTBACK and FRESTORE

Q: The red light on the floppy drive is on all the time.

A: FASTBACK and FRESTORE are designed to sense disk changes by monitoring the disk drive. There are many myths about the consequences of opening a running drive, but no data loss will occur as long as the drive is not writing to the diskette. The DRIVE will not be damaged by opening the door even if a write operation is in progress. Skeptics should remember that 8-inch drives never stop spinning.

FASTBACK

Q: The message 'WRONG DISK' or 'CAN'T READ LABEL' appears after a disk change.

A: A partial backup has been requested, or a command file is being used. The catalog indicates that a backup set has been started, so the data is to be appended to the last diskette in the set. The backup cannot continue until the last diskette is found.

If the diskette does not exist, abort the program with the 'ESC' key, erase the file '\FASTBACK\FASTBACK.CAT', and re-start.

FASTBACK

Q: The message 'CANNOT FORMAT/ WRITE' appears.

A: The disk controller cannot format the current track. This error is usually reported when standard diskettes are used in a 1.2Mb drive. Make sure the proper media is being used. A bad spot on the diskette may cause the error, but to do so it must occur in an ID field (very unlikely). Another possible cause is a disk drive which is running more than 2% fast. FASTBACK stores more data on a track than DOS because of the added error correction information, and is therefore less tolerant of a fast disk drive. There are programs available which can measure the speed of a floppy disk drive without removing the cover. Modern disk drives are usually regulated to 0.5%.

FASTBACK

Q: The message 'CANNOT OPEN, FILE SKIPPED' appears.

A: DOS returned a file name to FASTBACK on a 'Find Next' call, but a subsequent 'Open File' call was unsuccessful. The filename is probably illegal. BASIC can create file names in the directory with illegal characters (most common is a file name containing a space). If this is the cause, use BASIC to rename the offending files.

FASTBACK

page 16.

FASTBACK

Q: The message 'NEGATIVE LENGTH, FILE SKIPPED' appears.

A: There is a directory entry with a negative length. DOS didn't put it there. The directory structure is probably damaged, so expect other problems.

FASTBACK

Q: The message 'CHANGE DISKS' appears on the first disk even though there is a diskette in the drive.

A: On the first disk, FASTBACK must detect an empty drive before proceeding. This is to prevent the destruction of the distribution diskette. The condition is caused by changing the disks before the prompt appears. The solution is to open the drive door for 1 second and then close it.

FASTBACK

Q: On systems with 2 floppy disk drives, the message 'CHANGE DISKS' does not go away after a disk change.

A: This is normal. Since the floppy disk controller is already in use writing a diskette, FASTBACK cannot monitor the other drive to sense a disk change. The problem will rectify itself as soon as the current diskette is filled.

FASTBACK

Q: The message 'SEEK ERROR DURING FORMAT' appears.

A: DOS reset the floppy disk controller while FASTBACK was using it. This is usually because an error was encountered on the **HARD** disk (during the retry operation, all I/O devices are reset). Try using a diskette already formatted by FASTBACK. A seek error is not catastrophic unless a disk is being formatted. You may also try removing the offending file from the hard disk and mapping out the bad sector. Norton Utilities Version 3.0 contains a program (DISKTEST) which will scan the hard disk for bad sectors and, if found, map them out so DOS will not try to use them again.

EASTBACK*

10 Megabytes/8 Minutes

For IBM-PC™, XT™, AT™ and Compatibles

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